Hello Bio, Inc.
304 Wall St., Princeton, NJ 08540 USA

T. 609-683-7500
F. 609-228-4994

customercare-usa@m2stage.hellobio.com

DATASHEET

α-Galactosylceramide (alpha-GalCer) (KRN7000)

Product overview

Name	α-Galactosylceramide (alpha-GalCer) (KRN7000)
Cat No	HB3751
Alternative names	α-Gal-Cer; KRN7000, aGC
Purity	>96%
Description	Immunostimulant. Natural killer T cell stimulator.

Images

Biological Data

Biological description

Alpha-GalCer is an immunostimulant. It is a potent stimulator of natural killer T (NKT) cells and a specific ligand of the lipid-binding MHC class I-like protein CD1d in human and mouse NKT cells.

It protects against LPS-induced shock and is also a potent antitumor compound.

Synthetic. Originally isolated from the marine sponge Angelas mauritianus.

Solubility & Handling

Storage instructions	-20°C
Solubility overview	Soluble in Tween20 or PBS for cell culture use. Also Soluble in pyridine (not suitable for cell culture). Aliquot into glass vials.
Handling	This compound is is inherently an extremely hydrophobic molecule and is insoluble in water, methanol, ethanol and other organic solvents. It is very slightly soluble in tetrahydrofuran and pyridine. Almost all methods for solubilizing this material in primarily aqueous media will contain at least some detergent and somewhat cloudy solutions may be produced which are still acceptable to use.

Some example protocols are as follows:

Tween20 & Sodium Chloride, Heat/Sonicate

Storage instructions

-20°C

- Dissolve α-GalCer in 0.5% Tween20, 0.9% NaCl solution
- Heat to 85°C until solution turns cloudy
- Take out of water bath und keep at RT
- Solution will become clear quickly
- If particles are left, sonicate (important: sonication has to be performed in glass vial, not in a plastic Eppendorf tube) and filter afterwards with 2 µm filter

Tween20 & PBS, Heat/Sonicate

- Dissolve the compound (0.2mg/ml) in PBS containing 0.5% Tween20 (warm and sonicate for 2 hrs. at 37°C)
- The solution can be more like a suspension than a clear solution
- If particles are left, warm up and sonicate (important: sonication has to be performed in glass vial, not in a plastic Eppendorf tube)
- For sonication no interval is recommended, just use a conventional water bath sonicator at standard amplitude
- Heating and sonication should be done immediately prior to every use.

DMSO, Heat/Sonicate

- Dissolve the compound in anyhdrous DMSO at a concentration of 1mg/ml with heating at 80°C for several minutes
- Sonication for 2 h
- The solution of 1mg/ml in DMSO can be further diluted in PBS
- Please note the compound will likely precipitate out when added into aqueous media. It is therefore recommended that the aqueous media the DMSO stock solution will be diluted in should contain 10% serum/ BSA and the DMSO stock solution should be diluted no more than 1/100
- Further heating/ vortexing/sonication may be required to dissolve any remaining precipitate which may take time and need to be repeated

Handling continued..

2 Steps: Chloroform:Methanol > Evaporation > DMSO, PBS or Tween20 > Heat > Sonicate

- Dissolve the compound in a mixture of chloroform:methanol (2:1)
- Aliquot into reasonable aliquots for the experiment
- Evaporate the solvent using a gentle stream of nitrogen so that you have a thin, dry film of material at the bottom of the vial
- Add either DMSO or PBS + 0.5% Tween20 to achieve your final concentration
- Some heating and sonication might be necessary
- The thin film of compound generated by the evaporation step allows greater access of the compound to the solvent and better dissolution

5.6% sucrose, 0.75% L-histidine and 0.5% Tween20 > **Heat** > **Sonicate**

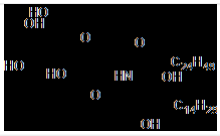
- Dissolve α-GalCer in 5.6% sucrose, 0.75% L-histidine and 0.5% Tween20
- Heat at 80°C for several minutes and sonicate

Please ensure solutions are mixed well immediately before use.

Important

This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.

Chemical Data

Molecular Weight	858.3
Chemical structure	
Molecular Formula	$C_{50}H_{99}NO_9$
CAS Number	158021-47-7
PubChem identifier	354334933
SMILES	CCCCCCCCCCCCCCCCCCCCCCCCCC(=O)NC(CO[C@H]1O[C@H](CO)[C@H](O)[C@H](O)[C@H]1O)[C@H](O)[C@H](O)CCCCCCCCCCCCCC
Source	Originally isolated from the marine sponge Angelas mauritianus
InChiKey	LSUQVAFARUJTHS-ABBGRRHVSA-N
MDL number	MFCD00939559
Appearance	Off-white solid

References

Stimulation of invariant natural killer T cells by α-Galactosylceramide activates the JAK-STAT pathway in endothelial cells and reduces angiogenesis in the 5T33 multiple myeloma model.

Nur et al (2014) Br J Haematol 167(5)
PubMedID 25142285

α-Galactosylceramide stimulates splenic lymphocyte proliferation in vitro and increases antibody production in vivo in late neonatal-age mice.

Chen and Ross (2015) Clin Exp Immunol 179(2)
PubMedID 25178151

Activation of natural killer T cells by alpha-galactosylceramide in the presence of CD1d provides protection against colitis in mice.

Saubermann et al (2000) Gastroenterology 119(1)
PubMedID 10889161